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Service



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Draft

Decision Notice

Melvin Butte Vegetation Management Project and Site- Specific Forest Plan Amendments

Sisters Ranger District, Deschutes National Forest
Deschutes County, Oregon

Predecisional Administrative Review Process:

This *draft* Decision Notice is made available with the final environmental assessment for the Melvin Butte Vegetation Management Project pursuant to 36 CFR 218.7(b). The timeframe for the opportunity to object to this project will begin with publication of a legal notice in *The Bulletin*, the newspaper of record. For more information on the predecisional administrative review process see page 12 of this draft Decision Notice.

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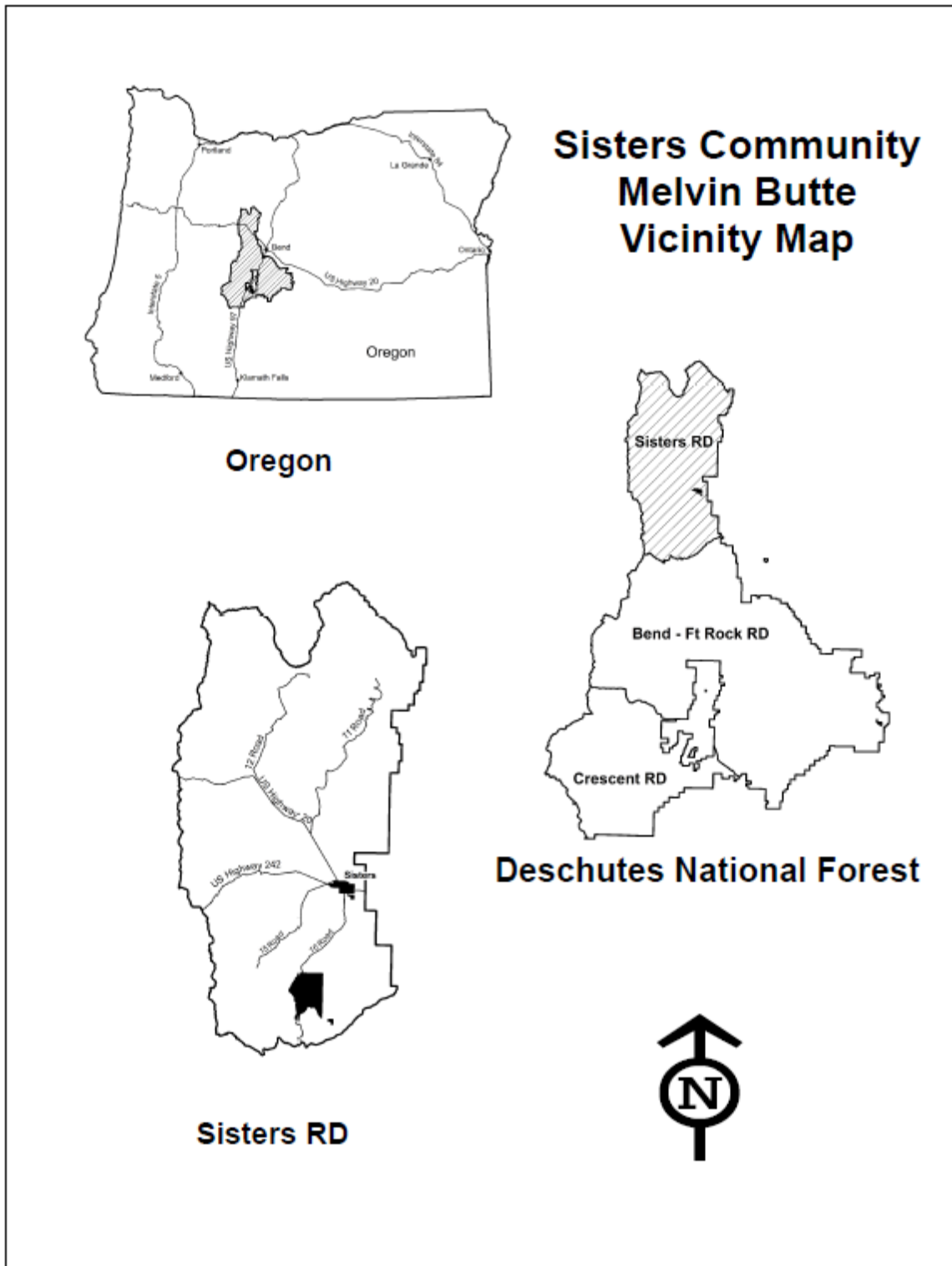


Figure 1. Location of the Melvin Butte Vegetation Management Project area

DRAFT DECISION NOTICE

Melvin Butte Vegetation Management Project and Site-Specific Forest Plan Amendments

USDA Forest Service
Sisters Ranger District, Deschutes National Forest
Deschutes County, Oregon

Legal Location: T16S, R09E and T17S, R09E. Willamette Meridian

Introduction and Background

This draft Decision Notice (DN) documents my proposed decision and rationale for the selection of Alternative 2 of the August 2016 final Melvin Butte Vegetation Management Project environmental assessment. The project will maintain and restore forest resiliency and forest health to provide habitat for interior forest species such as the Northern spotted owl and reduce the hazard of large scale wildfires on about 4,469 acres. There has been departure in conifer stands in the project area from the Historic Range of Variability (HRV) and vegetation treatments such as thinning from below and prescribed burning will create conditions that move stands towards the HRV over the long-term. Moving areas towards the HRV will help meet the purpose and need for action.

My decision is based on the existing condition of the project area and the subsequent need for action. About 88% of the project area is currently in overstocked conifer stands that indicate risk to important ecosystem elements such as old-growth ponderosa pine by disturbance factors such as wildfire, insects, and disease. Dense stands of trees are primarily a result of ingrowth from fire suppression and/or exclusion and past management activities such as clear-cutting (and subsequent replanting). Seventy-five percent of the project area is dominated by small trees less than 20 inches diameter at breast height with dense multi-story canopies, resulting in contiguous ladder fuels or plantations with uniform canopies and a high density shrub layer. About 2/3rd of the project area contains low to high levels of dwarf mistletoe. These acres are considered at high risk for bark beetle (mountain and western pine beetles) mortality, stand replacement fire, further dwarf mistletoe infection, and overall reduction in tree vigor and longevity among all size classes, including large old growth ponderosa pine. Under severe weather conditions, about 44% of the area is determined to have a high fire hazard.

The project area is located within the *Deschutes Collaborative Forest Project Area, Deschutes Skyline Landscape*, which was selected by the Secretary of Agriculture and an advisory committee in 2010 as a Collaborative Forest Landscape Restoration Project. The Melvin Butte Vegetation Management Project was initially presented to the Deschutes Collaborative Landscape Restoration Project Steering Committee in March 2014. A number of field trips were held with the collaborative working group to discuss forest health, silviculture prescriptions, and other related issues. Updates on the project were also presented by the Melvin Butte planning team in Bend, Oregon (see page 9 of this draft Decision Notice for more detail).

The draft DN is distributed according to 36 CFR 218.7 providing a 45-day period for objection to be filed prior to making a final decision.

The project area is about nine air miles south of the city of Sisters, Oregon and is located on the Sisters Ranger District, Deschutes National Forest (Figure 1). The project area is about 5,375 acres.

Decision and Rationale

I have reviewed the final environmental assessment for the Melvin Butte Vegetation Management Project and the information contained in the project file. I have also reviewed and considered the public comments submitted on this project. I have determined that there is adequate information to make a reasoned choice among alternatives. It is my decision to select Alternative 2, including associated connected actions, project design criteria, and resource protection measures as described in the environmental assessment (final EA pages 37-53 and 55-73).

Specifics of the Decision

The *purpose* of the project is to maintain and restore forest resiliency and forest health in stands that provide habitat for interior forest wildlife species and pose a potential hazard of large scale wildfire in the Melvin Butte area.

There is a *need* to reduce fuel loadings and forest vegetation density to lessen the hazard of large wildfires to nearby communities and key ecosystem components, such as large old pine trees. Recent large fires such as the 2012 Pole Creek fire have dramatically changed the landscape leaving the project area isolated and thereby increasing the urgency of protecting the remaining forest.

The project area is currently at risk of stand replacement wildfire associated with insects, disease, and overstocking. The project area contains a designated Wildland Urban Interface (WUI) located along Forest Road 16. The project will also provide wood products to the local and regional economy as a byproduct of landscape level treatments (final EA pages 14-16).

Alternative 2 will treat about 4,469 acres in the project area, including hazardous fuels reduction in a designated Wildland Urban Interface. All silvicultural treatments take place in the Matrix land allocation as defined by the Northwest Forest Plan. Alternative 2 will produce about 6.6 MMBF of timber. About 64 timber related jobs will be created.

A Wildlife Habitat Retention Strategy was developed as part of the overall project design. The strategy used a combination of soil type productivity and future habitat needs to identify areas with the greatest potential to develop into mature multi-stored mixed conifer stands or areas more likely to develop single story ponderosa pine stands. Based on this strategy about 775 acres will be retained as no treatment blocks placed strategically across the project area (final EA page 18). Riparian Reserves could also serve as no treatment areas to provide connectivity across the project area; no Riparian Reserves will be treated under Alternative 2.

Silvicultural treatments and the use of prescribed fire will help meet the desired future condition for forested vegetation (final EA page 16). Treatments include the thinning of plantations using variable density thinning techniques; dwarf mistletoe treatments; prescribed fire only treatments; thinning from below in old-growth ponderosa pine stands; thinning from below in second-growth ponderosa pine stands; thinning from below with group openings in the mixed conifer plant association group (retaining all old growth ponderosa pine where present); and treatments to meet the objectives for the Scenic Views land allocation (Table 1). Secondary treatments include mastication/mowing of shrubs and the use of prescribed fire.

See Appendix A of this draft Decision Notice for a map of Alternative 2; see Appendix B of this draft Decision Notice for the stand level prescription table.

Table 1. Summary of Treatment Acres

Treatment Type	Acres
Lodgepole Pine Improvement	249
Plantation Thinning	1,174
Pondarosa Pine Infected with Dwarf Mistletoe	160
Prescribed Fire	809
Thinning	998
Thinning with Group Openings	839
Scenic Views Enhancement	240
Total	4,469

For a detailed description of the treatments types see pages 37-40 of the final environmental assessment.

Ground-based logging systems will be used; only slopes less than 30% slope are included in timber harvest. Minor inclusions of slopes greater than 30% slope could exist within the interior of harvest units. These areas could either be long-lined to remove cut trees (no equipment will be allowed) or left as uncut areas (final EA pages 40-41).

Management of the project area is guided by the Deschutes National Forest Land and Resource Management Plan (LRMP), as amended by the Northwest Forest Plan (NWFP). The project area is primarily located on lands allocated to the *Matrix* land allocation. Most timber harvest and other silvicultural activities would be conducted in that part of the Matrix with suitable forest lands. About 5,208 acres of the 5,375 acre project area are located in the Matrix. The remaining 167 acres are allocated to the *Administratively Withdrawn* land allocation; proposed treatments in this land allocation include prescribed burning and some small tree ladder fuel reduction. No scheduled timber harvest will take place in the *Administratively Withdrawn* land allocation.

The project area does not contain the *Late Successional Reserve* (LSR) land allocation. No *Riparian Reserve* acres will be treated (final EA pages 5-8).

Deschutes National Forest Land and Resource Management Plan (LRMP) land allocations in the project area include *Scenic Views* (MA-9); *Old Growth* (MA-15); and *Front Country* (MA-18) (final EA pages 5-6).

The project is in compliance with all relevant standards and guidelines outlined in the Deschutes National Forest LRMP, as amended.

Road Closure, Road Decommissioning and Construction of Temporary Roads

My decision will decommission about 8 miles of road and close about 6 miles of road. Alternative 2 will construct about 0.80 miles of temporary roads to access stands for silvicultural treatment. Any temporary roads will be closed and restored after use. In 2015 a Transportation Analysis Report was completed to identify the minimum road system for the Deschutes National Forest. To support road closure, road decommissioning, and temporary road construction a supplemental Roads Analysis was completed for the project (final EA pages 10, 22, and 440-453).

Resource Protection Measures

My decision incorporates the Resource Protection Measures developed for the project (final EA pages 55-73 and Appendix B of this draft Decision Notice). Resource Protection Measures are an integral part of project design and will be carried through project implementation.

Forest Plan Amendments

My decision includes two site-specific Forest Plan amendments as described in the final environmental assessment. The use of amendments to existing standards and guidelines follow guidance contained in the 1982 Planning Rule at 36 CFR 219.7 – Effective Dates and Transition. For a detailed discussion of the direct, indirect, and cumulative effects associated with the Forest Plan amendments see the final environmental assessment (final EA pages 22-32).

First, Scenic Views standard and guideline M9-27 will be amended to allow the visual effects of slash clean-up and fuels reduction for approximately a five year period. Second, Scenic Views standard and guideline M9-90 will be amended to allow for prescribed burn units to exceed the five acre minimum, where necessary, and allow tree canopy scorch height to exceed the 30% minimum in some area. These amendments are needed to allow for operational flexibility and to meet the purpose and need for action.

Findings

The proposed revised Scenic Views standards and guidelines will not appreciably change Forest-wide impacts disclosed in the Forest Plan Environmental Impact Statement, based on the following factors:

Timing

The effects of the proposed revised Scenic Views standards and guidelines for implementing the Melvin Butte Vegetation Management Project are predicted to occur in the short-term (approximately 5 years after the start of treatment) for prescribed burning and post harvest activities.

Location and Size

The effects of the proposed revised Scenic Views standards and guidelines are site specific and will only affect areas within the Melvin Butte Vegetation Management Project area boundary. About 1,217 acres (23% of the total project area) will be affected by the use of the site-specific Forest Plan amendments.

Goals, Objectives, and Outputs

The proposed revised Scenic Views standards and guidelines will not alter the long-term relationship between levels of good and services projected by the Forest Plan. There will not be any change in timber outputs over what might be available if the project was designed without the proposed amendments.

Management Prescriptions

The proposed revised Scenic Views standards and guidelines will not change the desired future condition for land and resources from that outlined by the existing management direction in the Forest Plan in the short-term. It will not affect the entire Forest Plan planning area; only about 1,217 acres of National Forest System lands within the Melvin Butte Vegetation Management Project area will be amended. The proposed amendments will not change the Forest Plan allocations or management areas.

Conclusion

I find the two site-specific amendments will allow for more effective and efficient fuels treatments in the Timber/Mixed Conifer foreground areas, help meet the desired future condition for lands located in a designated Wildland Urban Interface, in addition to providing safe egress of the public and ingress of fire suppression resources in the event of a wildfire, as well as meeting long-term management goals for the Scenic Views land allocation. In conclusion, I find the two site-specific Forest Plan amendments are not significant in light of the findings presented above and the effects analysis described in the final environmental assessment (final EA page 32).

Survey and Manage: Pechman Exemptions

My decision is consistent with the January 2001 *Record of Decision and Standard and Guidelines for Amendments to the Survey and Manage Protection Buffer, and other Mitigation Measures Standards and Guidelines*.

The project utilizes the December 2003 species list. This list incorporates plant species changes and removals made as a result of the 2001, 2002, and 2003 Annual Species Review.

My decision applies two exemptions from a stipulation entered by the court in litigation regarding survey and manage species and the 2014 Record of Decision related to Survey and Manage Mitigation Measure in *Northwest Ecosystem Alliance v. Rey*, No. 04-844-MJP (W.D. Wash., Oct. 10, 2006). The exemptions are known as the “Pechman Exemptions.” The use of the Pechman Exemptions does not require pre-disturbance surveys for survey and manage species.

Two Pechman Exemptions are applied to specific stand types in the project area.

The two exemptions are:

a) Thinning projects in stands younger than 80 years old and;
d) The portions of projects involving hazardous fuel treatments where prescribed fire is applied. Any portion of a hazardous fuel treatment project involving commercial logging will remain subject to the survey and manage requirements except for thinning stands younger than 80 years old under subparagraph a. of this paragraph.

Pechman Exemption (a) will be applied to plantations in the project area. About 1,174 acres of plantations were planted from 1981-1993 (ranging from 23-35 years old) and will be thinned using a variable density prescription. Stands less than 80 years old are exempt from pre-disturbance surveys. No survey and manage species or probable habitat is known from the area (final EA page 391).

Pechman Exemption (d) will be applied to about 808 acres of Late Successional Old Growth (LSOG) in the project area. Understory conifer ladder fuels less than 8 inches diameter at breast height may be cut and hand piled, if necessary, to protect overstory trees and the areas prescribed burned. No ground disturbing activities will take place; no commercial timber harvest or biomass removal is associated with this treatment. Pre-disturbance surveys are not required. No survey and manage species or probable habitat is known from the area (final EA pages 391 and 369). The Pechman Exemption (d) will be applied to units 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 14, 15, and 17.

Reasons for the Decision

My decision to select Alternative 2 was made considering how well the alternative meets the purpose and need for action, how the alternative responds to resource issues, and what the likely environmental effects will be. In selecting Alternative 2, I carefully reviewed the disclosures in Chapter 3 of the final environmental assessment. The analysis discloses predicted environmental consequences of the actions, including effects to the Northern spotted owl and other wildlife species; benefits to forest health; reduction of wildfire risk, especially in the Wildland Urban Interface; compliance with water quality regulations, including compliance with the Aquatic Conservation Strategy; and maintenance of soil productivity. My conclusions are based on a review of the project record, including a thorough review of relevant scientific information.

The following narratives provide more detail on my reason for the decision.

1. Response of Alternative 2 to the Purpose and Need

My decision will move the project area towards the desired future condition. There has been a departure from the Historic Range of Variability (HRV) across the project area. The greatest departure from HRV occurs in ponderosa pine, where large diameter open ponderosa pine stands were once distributed across the landscape in both the ponderosa pine and mixed conifer plant associations; about 90% of the project area was once dominated by ponderosa pine stands. Currently about 75% of the project area is dominated by trees less than 20 inches diameter at breast height (final EA page 15).

Species composition across the project area is also outside of the HRV. The most dramatic changes have occurred in the mixed conifer (dry and wet) plant association groups because of overstory removal of ponderosa pine and fire suppression and exclusion. This has led to an overall increase in advanced grand/white fir persistence and abundance at the expense of ponderosa pine regeneration compared to the reference condition. These conditions can preclude the growth and development of large diameter ponderosa pine over the long term due to competition for site resources. Additionally, densities of grand/white fir regeneration and subsequent development of shade intolerant trees as ladder fuels put the remaining overstory old ponderosa pine at risk to high intensity wildfires. The potential loss of these capstone species reduces the resiliency of the landscape to respond to disturbance over time (final EA page 16).

Moving the area towards HRV will maintain and restore forest resiliency and forest health and help meet the purpose and need for action. By applying silvicultural prescriptions such as thinning from below to maintain large diameter legacy ponderosa pine, group openings to restore pine where it once occurred, and the use of variable density thinning in second growth ponderosa pine and plantations, including the use of prescribed fire, treatments will 1) maintain and improve long-term habitat for interior forest species; 2) reduce fire risk for large stand replacement events; 3) improve the potential for large ponderosa pine tree development; and 4) maintain and enhance stand densities that favor resistance and resiliency to future unknown disturbance (final EA page 14-16).

The project area contains a designated Wildland Urban Interface (WUI) as described in the *Greater Sisters Country Community Wildfire Protection Plan*. The Wildland Urban Interface follows Forest Road 16 south from the city of Sisters to the Three Creek Lake basin, a popular and highly used recreation destination on the Sisters Ranger District. Treatments such as thinning from below to remove ladder fuels and prescribed burning in the Wildland Urban Interface will provide for the safe ingress of fire suppression resources and the safe egress of the public in the event of a wildfire.

Alternative 2 will also reduce fire hazard across the project area from a current high of around 44% of the project acres to a low of around 7%. This is important because the project area has some of the last remaining mixed conifer stands in that portion of the Ranger District (final EA page 379).

2. Consideration of Public Comment and other Resource Issues

In making this decision I thoroughly considered the comments received during the 30-day public comment period on the draft environmental assessment. Appendix I of the final environmental assessment details the consideration and response to public comments. In responding to comments the interdisciplinary team has supplemented and improved some of the analysis, made factual and editorial corrections, and made clarifications. Specific changes made to the final environmental assessment since the comment period includes corrections of typographical mistakes and style and a more robust analysis of wildlife cumulative effects.

Other Alternatives Analyzed

In addition to the selected Alternative 2, two additional alternatives were analyzed in detail. They include Alternative 1, No Action, and Alternative 3.

Alternative 1 (No Action)

Alternative 1 is the No Action alternative. This alternative provides baseline information on the affected resources, including expected trends. There would be an increase overtime in stand densities across the project landscape, putting large old trees at risk to insects and disease, as well as competition for site resources such as nutrients and water. There would also be an increase over time of the fire hazard due to the lack of treatment in the Wildland Urban Interface; this would affect public health and safety as well as a heightened risk to wildland firefighters entering the project area. Currently the project area has a high fire hazard rating (final EA page 37). Detailed discussions of the existing condition for each resource area is contained in the final environmental assessment.

Alternative 3

Alternative 3 was developed in response to Key Issues identified during public scoping: 1) do not construct any temporary roads; 2) do not include group openings in the mixed conifer plant association; and 3) do not remove large diameter ponderosa pine trees with dwarf mistletoe (final EA pages 46-53).

Alternative 3 would treat about 4,405 acres. This action alternative would convert group openings in the mixed conifer plant association to a thinning treatment; convert the dwarf mistletoe treatment to a thinning treatment; and would not construct any temporary roads. About 6.3 MMBF of timber would be harvested. About 60 jobs would be created.

I considered the effects analysis on resources of concern in my consideration of Alternative 3. Analysis contained in the final environmental assessment show very minor differences between the action alternatives (final EA pages 73-77).

Public Involvement

The proposal was listed in the Schedule of Proposed Actions (SOPA) in the spring 2013. A scoping letter was mailed in March 26, 2014. Scoping comments were used to identify Key Issues which lead to the development of Alternative 3.

Comments addressed a wide range of issues including roads and invasive plants, dwarf mistletoe treatments, group opening treatments, carbon storage, Wildland Urban Interface treatments, citizen identified unroaded areas, fire hazard and fire regimes, and construction of temporary roads.

The draft environmental assessment was released for 30-day public comment on January 8, 2016. Comments were received from 5 people representing three organizations and two businesses. Organizations included the American Forest Resource Council, INTERFOR, Oregon Wild, Blue

Mountains Biodiversity Project, and Quicksilver Contracting. About 90 comments were addressed. A summary of public comment was prepared as part of the project record and is included in the final environmental assessment (see Appendix I in the final EA).

A consideration of science submitted during the 30-day public comment period on the draft environmental assessment is also included in the final environmental assessment (Appendix J, final EA).

I have reviewed these comments and their relevance to the analysis contained in the final environmental assessment in considering my decision.

Deschutes Collaborative Forest Project

The Melvin Butte project area is located within the *Deschutes Collaborative Forest Project Area*, *Deschutes Skyline Landscape*, which was selected in 2010 by the Secretary of Agriculture and an advisory committee as a Collaborative Forest Landscape Project (final EA page 2).

The Melvin Butte Vegetation Management Project was initially presented to the collaborative steering committee in March 2014. During the development of the project the interdisciplinary team worked closely with members of the collaborative working group, in office settings and in the field, to find common ground and discuss issues related to forest health and resiliency and other resource concerns. Field trips were held on June 3, 2014, April 24, 2015, and October 30, 2015. Discussions focused on dwarf mistletoe treatments, the size of group openings, mixed conifer treatments, the relationship of stocking levels to potential bark beetle infestation, and the silvicultural treatment of old growth stands with large diameter trees less than 150 years old.

In addition to participating in discussions and field trips, the collaborative working group developed silvicultural treatment recommendations for the ponderosa pine forest type, the dry mixed conifer forest type, and stands infected with dwarf mistletoe. Recommendations were integrated into project planning, including the use of the Van Pelt guide for old-growth retention and limiting the size of group openings in the mixed conifer plant association.

A letter of support for Alternative 2 was received from the collaborative steering committee on July 15, 2016.

Consultation with Government Agencies and Tribes

A scoping letter was provided to the Tribal chairs for the Burns-Paiute, Klamath Tribe, and the Confederated Tribes of the Warm Springs, Oregon on February 24, 2014. The Tribes did not express any concerns regarding the project (final EA page 33).

Legal Requirements and Policy

In reviewing the final environmental assessment and actions associated with Alternative 2, I have concluded that my decision is consistent with the following laws and requirements:

The National Environmental Policy Act (NEPA)

NEPA establishes the format and content requirements of environmental analysis and documentation as well as requirements for public involvement and disclosure. The entire process of preparing this environmental assessment was undertaken to comply with NEPA (final EA page 11).

The National Forest Management Act (NFMA)

I find this decision to be consistent with the long term management objectives as discussed in the Deschutes National Forest Plan, as amended. All other Forest Plan direction, including the Northwest Forest Plan has been adhered to and incorporated into project design. In addition, I find Alternative 2 to be consistent with the requirements of the National Forest Management Act implementing regulations; specifically, under Alternative 2 there is no timber harvest on lands classified as unsuitable for timber production (final EA page 188). Alternative 2 is consistent with the management and vegetation requirements found at 36 CFR 219.217.

The Preservation of American Antiquities Act of June 1960 and the National Historic Preservation Act: the Oregon State Historic Preservation officer (SHPO)

The State Historic Preservation Office (SHPO) was consulted during project planning following guidelines in the Regional Programmatic Agreement among USDA-Forest Service, the Advisory Council on Historic Preservation, and the Oregon SHPO. A cultural resource inventory has been completed for the project area. On August 14, 2014, the Deschutes National Forest completed the “Project Review for Heritage Resources under the Terms of the 2004 Programmatic Agreement” with the Oregon State Historic Preservation Officer (SHPO). A second addendum was submitted on August 13, 2015. The project complies with Stipulation III (B)(2): *Undertaking meets the criteria in the PA (programmatic agreement) for a Historic Properties Avoided determination* (final EA page 421).

The Endangered Species Act of 1973, as amended

A Level 1 review was initiated with the U. S. Fish and Wildlife (USFW) on August 18, 2014 to discuss the project’s potential impacts on Northern spotted owl and Northern spotted owl Critical Habitat. A Biological Assessment (BA) was prepared and submitted to the USFW on February 15, 2015 and a Letter of Concurrence was issued by the USFW on March 5, 2015. Alternative 2 is determined to have *no effect* to the federally listed Northern spotted owl and its habitat; Alternative 2 *may affect but not likely to adversely affect* Northern spotted owl designated Critical Habitat. It has been determined that the implementation of all the proposed activities will have either no effect to any threatened or endangered fish or plant species, have no impact on any sensitive wildlife species or associated habitat, or may impact individuals or habitat but not cause a trend for federal listing (final EA pages 74-76).

The Clean Water Act, 1982 and 303(d) Listed Waterbodies

Alternative 2 will comply with the Clean Water Act. Alternative 2 will not affect water temperature or water quality since no vegetative management practices will occur in Riparian Reserves; no water bodies in the project area are listed on the Oregon 303(d) list for water temperature above the State standard (final EA pages 12 and 94-112).

The Clean Air Act

Alternative 2 will comply with the Clean Air Act. The Forest will follow directions of the Oregon State Forester in conducting prescribed burning in order to achieve strict compliance with all aspects of the Clean Air Act and adherence to the Oregon Smoke Management Plan (final EA pages 12-13 and 342-385)

Civil Rights and Environmental Justice

I have determined that there will be no discernible impacts from any of the alternatives on Native Americans, women, other minorities, or the Civil Rights of any American citizen (final EA pages 455-456).

Implementation

I reviewed the final environmental assessment and associated appendices and believe there is adequate information within these documents to provide a reasoned choice of action. I am fully aware of adverse effects that cannot be avoided and believe the risks are outweighed by the benefits.

Implementation of Alternative 2 will cause no unacceptable cumulative impact to any resource.

Minor changes may be needed during implementation to better meet on-site resource management and protection objectives. In determining whether and what kind of further NEPA action is required, I will consider the criteria to supplement an existing environmental assessment in 40 CFR 1502.9(c) and FSH 1909.15, sec. 18, and in particular, whether the proposed change is a substantial change to Alternative 2 as planned and already approved, and whether the change is relevant to environmental concerns. Connected or interrelated proposed changes regarding particular areas or specific activities will be considered together in making this determination. The cumulative impacts of these changes will also be considered.

Implementation may begin as soon as the fall of 2016 or the late spring of 2017.

Finding of No Significant Impact

The following intensity factors were used to assess the potential for environmental effects to be significant. Page numbers are referenced to the August 2016 final environmental assessment.

1. *Impacts that may be both beneficial and adverse.* My finding of no significant environmental effects is not biased by the beneficial effects of the action. The beneficial and adverse impacts are disclosed in the final environmental assessment and no significant effects on the human environment have been identified. As described in the Melvin Butte Vegetation Management Project final environmental assessment, beneficial and adverse effects and the reasons they are not expected to be significant include:

Water Quality and Fisheries –The effects to water quality and fisheries are negligible. There will be *no effect* to Columbia River bull trout or bull trout critical habitat. There will be *no impact* to Interior Redband Trout (final EA page 129-133). No water bodies in the project area are listed on the Oregon 303(d) list for water temperature above the State standard; no Riparian Reserves will be treated (final EA page 109). The project meets all nine objectives of the Aquatic Conservation Strategy (ACS) (final EA pages 133-139).

Threatened, Endangered, and Sensitive Wildlife Species –The project will have *no effect* on the Northern spotted owl and *may affect but is not likely to adversely affect* Northern spotted owl Critical Habitat (final EA pages 199-217). There will be *no effect* to the gray wolf (final EA pages 198-199). There will be *no effect* to the Oregon spotted frog or proposed critical habitat (final EA pages 217-218).

Management Indicator Species (MIS) –Alternative 2 is consistent with the standards and guidelines for Management Indicator Species in the Deschutes National Forest Land and Resource Management Plan, as amended (final EA page 197).

Botanical Species – There are no known populations or potential habitats for sensitive or survey and manage plant species in the project area (final EA pages 389-393). The project utilizes the Pechman Exemptions in specified portions of the project area. There is a moderate risk for the spread of invasive plants. Resource Protection Measures are required (final EA pages 393-398 and Appendix B of this draft Decision Notice).

Recreation – The direct and indirect effects to Forest visitors will occur due to the presence of machinery, creation of noise and dust from logging operations, possible traffic delays, and visual evidence such as marked trees and skid trails. Forest Plan standards and guidelines will be met through

the Resource Protection Measures (final EA pages 61-63 and Appendix B of this draft Decision Notice).

Cultural Resources – There will be no effects to known cultural resource sites (final EA pages 420-423).

2. *Public health and safety.* The reduction of hazardous fuels in the Wildland Urban Interface will allow the ingress of fire suppression resources and the egress of the public in the event of a wildfire. Actions in the Wildland Urban Interface will contribute to public health and safety over the short and long term (final EA pages 379-385).

3. *Unique characteristics of the area such as park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.* There are no park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas in the project area (final EA page 456).

4. *The degree to which the effects area likely to be highly controversial.* The nature of potential effects of the implementation of Alternative 2 is well established and not likely to be highly controversial in a scientific context. The best available science was utilized by the planning team to support the conclusions outlined in the final environmental assessment. While the public may perceive some aspect of the project to be controversial, there is no known scientific controversy over the impacts of the decision.

A consideration of science submitted during the 30-day public comment period on the draft environmental assessment is included in the final environmental assessment (final EA, Appendix J).

5. *The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.* The effects on the human environment from Alternative 2 are not uncertain and do not involve unique or unknown risks.

6. *The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.* The action will not establish a precedent for future actions with significant effects because it conforms to all existing Forest Plan direction. Future undertakings are subject to NEPA procedures.

7. *Cumulative effects.* No significant cumulative effects have been identified (final EA pages 73-77).

8. *Degree action may affect sites listed in or eligible for listing in the National Register of Historic Places or may cause loss of destruction of significant scientific, cultural, or historical resources.* The project will result in a Historic Properties Avoided determination. The cultural resource survey is in compliance with Section 106 of the National Historic Preservation Act and the 2004 Programmatic Agreement between the Forest Service and the Oregon State Historic Preservation Office (SHPO) (final EA pages 420-423).

9. *Degree action may adversely affect endangered or threatened species or its habitat that has been determined to be critical under the ESA.* Alternative 2 will have no effect to the endangered gray wolf or threatened Northern spotted owl or its habitat. Alternative 2 may effect but not likely to adversely effect Northern spotted owl designated Critical Habitat (final EA pages 196).

A Level 1 review was initiated with the U. S. Fish and Wildlife (USFW) on August 18, 2014 to discuss the project's potential impacts on Northern spotted owl and Northern spotted owl critical habitat. A Biological Assessment (BA) was prepared and submitted to the USFW on February 15, 2015 and a Letter of Concurrence was issued by the USFW on March 5, 2015 (final EA pages 9 and 201).

10. *This action does not threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment.* All applicable laws and regulations were considered in the planning of this project (final EA pages 10-14).

Predecisional Administrative Review Process

This project is subject to pre-decisional administrative review pursuant to 36 CFR 218, Subpart B. Also called the “objection process” the predecisional administrative review process replaced the appeal process in March 2013. The primary difference with the objection process is that a person may object to a project prior to the final decision, whereas under the appeal procedures, appeals were made after the decision. The full text of the rule can be found here:

<http://federal.eregulations.us/cfr/title/5/28/2013/title36/chapterII/part218>.

Only individuals or organizations that submitted specific written or oral comments during a designated opportunity for public participation (scoping or the 30 day public comment period) may object (36 CFR 218.5). Notices of objection must meet the requirements of 36 CFR 218.8. Objections can be submitted in writing, either electronically or in hard copy but must be filed with the Reviewing Officer within 45 days from the date of publication of notice of the opportunity to object in The Bulletin, Bend, OR. The publication date is the exclusive means for calculating the time to file an objection. Those wishing to file an objection to this decision should not rely upon dates or timeframe information provided by any other source.

Incorporation of documents by reference is not allowed, except for the following list of items that may be referenced by including date, page, and section of the cited document, along with a description of its content and applicability to the objection: 1) all or any part of a federal law or regulation; 2) Forest Service directives and land management plans; 3) documents referenced by the Forest Service in the subject environmental assessment; or 4) comments previously provided to the Forest Service by the objector during public involvement opportunities for the proposed project where written comments were requested by the responsible official. All other documents must be included with the objection.

Issues raised in objections must be based on previously submitted specific written comments regarding the proposed project or activity and attributed to the objector, unless the issue is based on new information that arose after the opportunities for comment. The burden is on the objector to demonstrate compliance with this requirement for objection issues.

Minimum requirements of an objection are described at 218.8(d). An objection must include a description of those aspects of the proposed project addressed by the objection, including specific issues related to the proposed project; if applicable, how the objector believes the environmental analysis or draft decision specifically violates law, regulation, or policy; suggested remedies that would resolve the objection; supporting reasons for the reviewing officer to consider; and a statement that demonstrates the connection between prior specific written comments on the particular proposed project or activity and the content of the objection, unless the objection concerns an issue that arose after the designated opportunities for comment.

Objections may be filed at the following locations:

- Postal Delivery: *Reviewing Officer, Pacific Northwest Region, USDA Forest Service , Attn: 1570 Appeals and Objections, PO Box 3623, Portland, Oregon 97208-3623;*
- Emailed to: objections-pnw-regional-office@fs.fed.us. Please put OBJECTION and the project name in the subject line. Electronic objections must be submitted as part of an actual e-mail message, or as an attachment in Microsoft Word (.doc), rich text format (.rtf), or portable document format (.pdf) only. E-mails submitted to addresses other than the ones listed above or in formats other than those listed above or containing viruses will be rejected. It is the responsibility of the objector to confirm receipt of objections submitted by electronic mail. For electronically mailed objections, the sender should normally receive an automated electronic acknowledgement from the agency as confirmation of receipt. If the sender does not receive an automated acknowledgement of receipt, it is the sender's responsibility to ensure timely receipt by other means;

- Hand deliveries: *Pacific Northwest Regional Office, 1220 SW 3rd Ave., Portland, Oregon 97204.* Hand deliveries can occur between 8:00 AM and 4:30 PM, Monday through Friday except legal holidays; or
- Faxed to: *Regional Forester, Attn: 1570 Appeals and Objections at (541)383-5553.*

Contact Persons / Further Information

Project records are on file at the Sisters Ranger District office. The final environmental assessment and other project documents are available on the internet at

http://data.ecosystem-management.org/nepaweb/nepa_project_exp.php?project=44107

For additional information concerning the specific activities authorized with my decision, you may contact:

Michael Keown, Environmental Coordinator
Sisters Ranger District
POB 249
Sisters, OR 97759
(541) 549-7735

Kristie L. Miller, District Ranger
Sisters Ranger District
POB 249
Sisters, OR 97759
(541) 549-7700

Responsible Official

The Forest Supervisor of the Deschutes National Forest is the official responsible for deciding the type and extent of management activities in the Melvin Butte Vegetation Management Project area.

Signature reserved for final decision

John P. Allen
Forest Supervisor
Deschutes National Forest

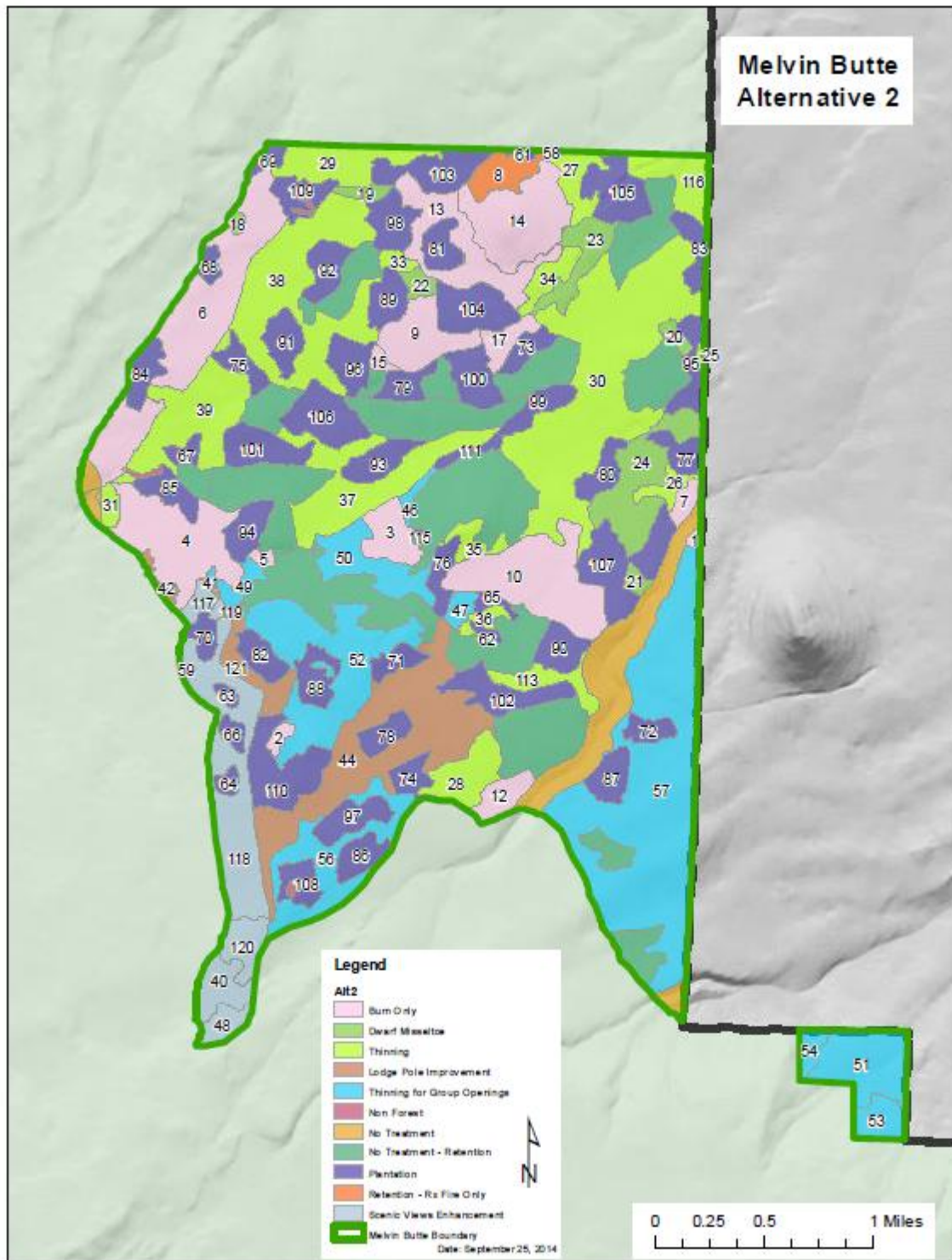
Appendix A: Map of the Selected Alternative

Figure 2: Alternative 2

Appendix B: Unit Prescriptions

Unit	Treatment	Secondary	NWFP	Mgmt. Area	Acres
1	Prescribed Fire	None	Matrix	M18	3.0
2	Prescribed Fire	None	Matrix	M9	6.9
3	Prescribed Fire	None	Matrix	M18	34.9
4	Prescribed Fire	None	Matrix	M18	13.4
	Prescribed Fire	None	Matrix	M9	146.2
5	Prescribed Fire	None	Matrix	M9	1.2
	Prescribed Fire	None	Matrix	M18	3.0
6	Prescribed Fire	None	Matrix	M18	3.8
	Prescribed Fire	None	Matrix	M9	132.3
7	Prescribed Fire	None	Matrix	M18	12.0
8	Retention (RX FIRE)	None	Administratively Withdrawn	M15	29.8
9	Prescribed Fire	None	Matrix	M18	54.6
10	Prescribed Fire	None	Matrix	M18	126.5
12	Prescribed Fire	None	Matrix	M18	22.3
	Prescribed Fire	None	Matrix	M18	56.5
13	Prescribed Fire	None	Administratively Withdrawn	M15	25.0
14	Prescribed Fire	None	Administratively Withdrawn	M15	111.8
15	Prescribed Fire	None	Matrix	M18	5.7
17	Prescribed Fire	None	Matrix	M18	19.5
18	Dwarf Mistletoe	MMPB	Matrix	M18	0.2
	Dwarf Mistletoe	MMPB	Matrix	M9	4.3
19	Dwarf Mistletoe	MMPB	Matrix	M9	0.8
	Dwarf Mistletoe	MMPB	Matrix	M18	7.9
20	Dwarf Mistletoe	MMPB	Matrix	M18	7.1
21	Dwarf Mistletoe	MMPB	Matrix	M18	7.6
22	Dwarf Mistletoe	MMPB	Matrix	M18	9.9
23	Dwarf Mistletoe	MMPB	Matrix	M18	35.8
24	Dwarf Mistletoe	MMPB	Matrix	M18	85.4
25	Thinning	MMPB	Matrix	M18	2.7
26	Thinning	MMPB	Matrix	M18	14.0
27	Thinning	MMPB	Matrix	M18	21.0
28	Thinning	MMPB	Matrix	M18	44.4
29	Thinning	MMPB	Matrix	M9	31.0
	Thinning	MMPB	Matrix	M18	26.5
30	Thinning	MMPB	Matrix	M18	326.3
31	Thinning	MMPB	Matrix	M18	6.2
	Thinning	MMPB	Matrix	M9	3.8

Unit	Treatment	Secondary	NWFP	Mgmt. Area	Acres
33	Thinning	MMPB	Matrix	M18	8.4
34	Thinning	MMPB	Matrix	M18	20.4
35	Thinning	MMPB	Matrix	M18	15.8
36	Thinning	MMPB	Matrix	M18	9.1
37	Thinning	MMPB	Matrix	M18	112.4
38	Thinning	MMPB	Matrix	M9	108.6
	Thinning	MMPB	Matrix	M18	75.3
39	Thinning	MMPB	Matrix	M9	89.8
	Thinning	MMPB	Matrix	M18	13.6
40	Scenic Views Enhancement	MMPB	Matrix	M9	33.4
41	Lodgepole Pine Improvement	MMPB	Matrix	M9	1.8
42	Lodgepole Pine Improvement	MMPB	Matrix	M9	6.4
	Lodgepole Pine Improvement	MMPB	Matrix	M18	2.1
44	Lodgepole Pine Improvement	MMPB	Matrix	M9	39.7
	Lodgepole Pine Improvement	MMPB	Matrix	M18	168.8
46	Thinning with Group Openings	MMPB	Matrix	M18	7.6
47	Thinning with Group Openings	MMPB	Matrix	M18	9.8
48	Scenic Views Enhancement	MMPB	Matrix	M9	19.0
49	Thinning with Group Openings	MMPB	Matrix	M9	15.6
50	Thinning with Group Openings	MMPB	Matrix	M18	57.6
51	Thinning with Group Openings	MMPB	Matrix	M18	74.4
52	Thinning with Group Openings	MMPB	Matrix	M9	48.4
	Thinning with Group Openings	MMPB	Matrix	M18	107.5
53	Thinning with Group Openings	MMPB	Matrix	M18	26.9
54	Thinning with Group Openings	MMPB	Matrix	M18	13.2
56	Thinning with Group Openings	MMPB	Matrix	M9	36.8
	Thinning with Group Openings	MMPB	Matrix	M18	49.5

Unit	Treatment	Secondary	NWFP	Mgmt. Area	Acres
57	Thinning with Group Openings	MMPB	Matrix	M18	392.3
58	Plantation	MMPB	Matrix	M18	0.3
59	Plantation	MMPB	Matrix	M18	1.9
62	Plantation	MMPB	Matrix	M18	4.3
63	Plantation	MMPB	Matrix	M9	5.5
64	Plantation	MMPB	Matrix	M9	7.0
65	Plantation	MMPB	Matrix	M18	7.0
66	Plantation	MMPB	Matrix	M9	8.5
67	Plantation	MMPB	Matrix	M9	9.3
68	Plantation	MMPB	Matrix	M18	0.8
	Plantation	MMPB	Matrix	M9	8.6
69	Plantation	MMPB	Matrix	M18	0.2
	Plantation	MMPB	Matrix	M9	9.8
70	Plantation	MMPB	Matrix	M9	13.9
	Plantation	MMPB	Matrix	M18	0.2
71	Plantation	MMPB	Matrix	M18	15.0
72	Plantation	MMPB	Matrix	M18	15.1
73	Plantation	MMPB	Matrix	M18	16.1
74	Plantation	MMPB	Matrix	M18	16.7
75	Plantation	MMPB	Matrix	M9	17.4
	Plantation	MMPB	Matrix	M18	0.3
76	Plantation	MMPB	Matrix	M18	18.5
77	Plantation	MMPB	Matrix	M18	18.8
78	Plantation	MMPB	Matrix	M18	18.8
79	Plantation	MMPB	Matrix	M18	19.3
80	Plantation	MMPB	Matrix	M18	20.9
81	Plantation	MMPB	Matrix	M18	20.6
82	Plantation	MMPB	Matrix	M9	21.2
83	Plantation	MMPB	Matrix	M18	21.5
84	Plantation	MMPB	Matrix	M9	22.6
85	Plantation	MMPB	Matrix	M9	21.8
86	Plantation	MMPB	Matrix	M18	22.7
87	Plantation	MMPB	Matrix	M18	22.9
88	Plantation	MMPB	Matrix	M9	5.1
	Plantation	MMPB	Matrix	M18	19.0
89	Plantation	MMPB	Matrix	M18	24.6
90	Plantation	MMPB	Matrix	M18	24.8
91	Plantation	MMPB	Matrix	M9	19.9
	Plantation	MMPB	Matrix	M18	4.9

Unit	Treatment	Secondary	NWFP	Mgmt. Area	Acres
92	Plantation	MMPB	Matrix	M9	9.0
	Plantation	MMPB	Matrix	M18	15.8
93	Plantation	MMPB	Matrix	M18	25.4
94	Plantation	MMPB	Matrix	M9	8.5
	Plantation	MMPB	Matrix	M18	17.2
95	Plantation	MMPB	Matrix	M18	26.3
96	Plantation	MMPB	Matrix	M18	26.3
97	Plantation	MMPB	Matrix	M9	1.6
	Plantation	MMPB	Matrix	M18	25.8
98	Plantation	MMPB	Matrix	M18	29.8
99	Plantation	MMPB	Matrix	M18	21.6
100	Plantation	MMPB	Matrix	M18	31.0
101	Plantation	MMPB	Matrix	M18	36.0
102	Plantation	MMPB	Matrix	M18	41.7
103	Plantation	MMPB	Matrix	M18	40.1
104	Plantation	MMPB	Matrix	M18	43.4
105	Plantation	MMPB	Matrix	M18	44.4
106	Plantation	MMPB	Matrix	M18	46.8
107	Plantation	MMPB	Matrix	M18	65.8
108	Plantation	MMPB	Matrix	M9	19.3
	Plantation	MMPB	Matrix	M18	0.3
109	Plantation	MMPB	Matrix	M9	22.2
110	Plantation	MMPB	Matrix	M9	56.6
	Plantation	MMPB	Matrix	M18	2.4
111	Plantation	MMPB	Matrix	M18	8.7
113	Thinning	MMPB	Matrix	M18	26.7
115	Plantation	MMPB	Matrix	M18	2.2
116	Thinning	MMPB	Matrix	M18	42.4
117	Scenic Views Enhancement	MMPB	Matrix	M9	11.9
	Scenic Views Enhancement	MMPB	Matrix	M18	0.1
118	Scenic Views Enhancement	MMPB	Matrix	M8	1.1
	Scenic Views Enhancement	MMPB	Matrix	M9	129.9
	Scenic Views Enhancement	MMPB	Matrix	M18	13.0
119	Scenic Views Enhancement	MMPB	Matrix	M9	3.6
120	Scenic Views Enhancement	MMPB	Matrix	M9	28.7
121	Lodgepole Pine Improvement	MMPB	Matrix	M9	30.6
				Total	4469

Note: MMPM = Mowing and/or mastication and prescribed burn.

Appendix B: Resource Protection Measures

The following Resource Protection Measures will be applied to Alternative 2. Some measures are applied to the entire sale area; others are unit specific. Resource Protection Measures are project design criteria and best management practices that would reduce or eliminate unwanted effects and ensure project activities are implemented to comply with all necessary Forest Plan standards and guidelines.

Soils

Ground-based Skidding and Yarding Operations

- Use ground-based yarding systems only when physical site characteristics are suitable to avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources (BMP Veg-4).
 - Avoid equipment operations on slopes greater than 30 percent (LRMP SL-2) (*Entire Sale*).
 - Assess sensitive soils to determine if equipment operations can occur without causing excessive soil disturbance (LRMP SL-3) (*Entire Sale*).
- Use suitable measures during felling and skidding operations to avoid or minimize disturbance to soils and water bodies to the extent practicable (BMP Veg-4).
 - Use directional felling techniques from pre-approved skid trails, and suspend the leading end of logs during skidding operations (*Entire Sale*).
 - On steep pitches within a harvest unit (slopes of 30 percent or steeper) and less than 100 feet long, directional felling of trees to skid trails and/or line pulling should be utilized to harvest trees. This method applies to harvest units with small areas of steeper slopes (e.g. less than 5 percent of the unit area) (*Entire Sale*).
 - Stop harvest operations when soils become too wet to operate on without causing excessive soil disturbance (*Entire Sale*).
- Use existing roads and skid trail networks to the extent practicable (BMP Veg-4).
 - Use old landings and skidding networks whenever possible. Assure that water control structures are installed and maintained on skid trails that have gradients of 10 percent or more. Ensure erosion control structures are stabilized and working effectively (LRMP SL-1) (*Entire Sale*).
- Design and locate skid trails and skidding operations to minimize soil disturbance to the extent practicable (BMP Veg-4).
 - In all proposed activity areas, locations of new yarding and transportation systems will be designated prior to the logging operations. This includes temporary roads, spur roads, log landings, and primary (main) skid trail networks (LRMP SL-1 & SL-3) (*Entire Sale*).
 - Designate locations for new trails and landings so that they properly fit the terrain and minimize the extent of soil disturbance (LRMP SL-3) (*Entire Sale*).
 - Restrict skidders and tractors to designated areas (i.e., roads, landings, designated skid trails), and limit the amount of traffic from other specialized equipment off designated areas. Harvester shears will be authorized to operate off designated skid trails at 30 foot intervals and make no more than two equipment passes on any site specific area to accumulate materials (*Entire Sale*).
 - When using conventional harvest equipment that include harvester shears and rubber tired or tracked skidders, maintain spacing of 100 to 150 feet for all primary skid trail routes, except where converging at landings. Closer spacing due to complex terrain must be approved in advance by the Timber Sale Administrator and Soil Scientist.

Main skid trails have typically been spaced 100 feet apart (11% of the unit area). For larger activity areas (greater than 40 acres) that can accommodate wider spacing distances, it is recommended that distance between main skid trails be increased to 150 feet to reduce the amount of detrimentally disturbed soil to 7% of the unit area (Froehlich 1981) (*Entire Sale*).

- When using harvester forwarder equipment space trails a minimum of 60 feet apart. Make use of ghost trails as much as possible on which the harvester makes only one pass and positions harvested materials so they can be reached from alternate harvester forwarder trails (*Entire Sale*).
- Use suitable measures to stabilize and restore skid trails after use (BMP Veg-4).
 - Evaluate soil conditions and identify soil restoration opportunities (subsoiling) on skid trails post-harvest (*Entire Sale*).

Landings

- Minimize the size and number of landings as practicable to accommodate safe, economical, and efficient operations (BMP Veg-6) (*Entire Sale*).
- Avoid locating landings near any type of likely flow or sediment transport conduit during storms, such as ephemeral channels and swales, where practicable (BMP Veg-6) (*Entire Sale*).
- Locate landings to minimize the number of required skid roads (BMP Veg-6) (*Entire Sale*).
- Re-use existing landings where their location is compatible with management objectives and water quality protection (BMP Veg-6) (*Entire Sale*).

Winter Logging

- Conduct winter logging operations when the ground is frozen or snow cover and depth is adequate to avoid or minimize unacceptable rutting or displacement of soil (BMP Veg-7) (*Entire Sale*).
- Suspend winter operations if ground and snow conditions change such that unacceptable soil disturbance, compaction, displacement, or erosion becomes likely (BMP Veg-7) (*Entire Sale*).

Use of Prescribed Fire

- Conduct prescribed fires to minimize the residence time on the soil while meeting the burn objectives.
 - Manage fire intensity to maintain target levels of soil temperature, duff, and residual vegetation cover within the limits and at locations described in the prescribed fire plan (BMP Fire-2) (*Entire Sale*).
- Consider alternatives to ground-disturbing fireline construction such as using existing roads or other already existing suitable features for firelines.
 - If fireline construction is necessary, construct line to the minimum size and standard necessary to contain the prescribed fire and meet overall project objectives (BMP Fire-2) (*Entire Sale*).

Hydrology and Fisheries

Vegetation Management Planning

- Through the project planning and design process, the following areas are excluded from treatment to protect water quality and riparian resources:
 - No treatments are proposed in Riparian Reserves except for 0.1 miles of road closure and decommissioning (*Entire Sale Area*)

- No new roads or new temporary roads will be constructed in Riparian Reserves (*Entire Sale Area*)

Ground-Based Skidding and Yarding Operations (FSM 2409.15)

- Modify mechanical vegetation treatment prescriptions and operations as needed to maintain ecosystem structure, function, and processes.
 - Mechanical treatment and equipment is not allowed within 30 ft. on either side of the ephemeral channels, unless approved by a hydrologist or fisheries biologist. (*Units 10, 17, 23, 30, 37, 44, 76, 79, 80, 95, 99, 100, 105, 116*)
 - Removal of trees within 30 ft. on either side of ephemeral channels is not allowed unless approved by a hydrologist or fisheries biologist. (*Moderately effective – Entire Sale Area and Units 10, 17, 23, 30, 37, 44, 76, 79, 80, 95, 99, 100, 105, 116*)
 - Do not pile slash in swales, washes, or depressions (*Units 10, 17, 23, 30, 37, 44, 76, 79, 80, 95, 99, 100, 105, and 116*).
 - Ditches and channelized streams that are functioning as a stream should be buffered based on the class of stream for which they are functioning (i.e. Class 4 buffer if the ditch is intermittent, etc.). (*Entire Sale Area*)
 - Ditches that do not connect back to a stream (i.e. they feed out into a pasture or irrigation device) should be buffered 30 foot to protect the integrity of the channel. No mechanized equipment is allowed within the buffer. Hand-thinning or reaching in with equipment is permitted but cutting of trees within the channel or on the banks is not permitted. Do not fell or yard any trees across the channel in order to protect channel integrity. (*Entire Sale Area*)
- Locate transportation facilities for mechanical vegetation treatments, including roads, landings, and skid trails outside Riparian Reserves and ephemeral draws to the extent practicable.
 - Crossing of designated ephemeral draws will be limited and approved by a hydrologist or fisheries biologist(*Entire Sale Area*)
 - Landings will be located at least 30ft from ephemeral draws and outside of Riparian Reserves. (*Entire Sale Area*)
- Implement Best Management logging practices that will reduce erosion and potential water quality effects.
 - Installation of waterbars on skid trails where needed. (*Entire Sale Area*)
 - Construction of new landings and skid trails would be minimized. (*Entire Sale Area*)
 - No ground-based harvest on slopes over 30%. (*Entire Sale Area*)
 - See soils BMP document for additional specific measures to minimize effect of ground-based skidding and yarding operations.

Hauling Operations

- No haul on hydrologically connected roads or roads within riparian reserves when conditions are wet and can cause sedimentation to reach Three Creek. (*Entire Sale Area*)
- No haul across stream fords when streams are flowing. (*Entire Sale Area*)
- Improve drainage on unstable hydrologically connected roads before haul can occur and implement regular preventative maintenance. (*Entire Sale Area*)
- Consult with a hydrologist or soil scientist to determine if roads are too wet for haul.
- Roads that may need maintenance or that should be monitored for excessive wetness in hydrologically connected areas are (other roads may be identified in the field):
 - 1620-377 – adjacent to ephemeral draw, decommission after use;
 - 1620-570 – adjacent to ephemeral draw, close after use;

- 1620-880 – adjacent to ephemeral draw;
- 1624-360 – adjacent to ephemeral draw, decommissioning after use.
- Obliterate all temporary roads. (*Units 4, 51, 56*)

Wildlife

- Disruptive work activities will not take place within ¼ mile of any newly discovered nest sites for the species listed below. Haul restrictions will be assessed on a case-by-case basis. This condition may be waived in a particular year if nesting or reproductive success surveys reveal that the species indicated in non-nesting or that young are present that year. Waivers are valid only until the start date of the restriction of the following year (Table 1). (*Entire Sale Area*)

Table 1: Buffer restrictions for nesting raptors

Species	Restriction Period	Buffer Distance Around Nest
Northern spotted owl	March 1 – September 30	¼ mile
Northern goshawk	March 1 – August 31	¼ mile
Cooper's hawk	April 15 – August 31	¼ mile
Sharp-shinned hawk	April 15 – August 31	¼ mile
Red-tailed hawk	March 1 – August 31	¼ mile
Great gray owl	March 1 – June 30	¼ mile
Osprey	April 1 – August 31	¼ mile

- To avoid potential nest destruction and loss of broods, schedule harvest and post-harvest activities outside of nesting season in appropriate habitats (Table 2). (*Entire Sale Area*)

Table 2: Species nesting season

Species	Dates
Lewis woodpecker	March 15-June 30
White-headed woodpecker	March 15-June 30
Pygmy huthatch	March 15-June 30
Olive-sided flycatcher	March 15-June 30
Pileated woodpecker	March 15-June 30
Northern flicker	March 15-June 30
Blue grouse	March 15-June 30

Goshawk

- Disruptive work activities will not take place within ¼ mile of newly discovered nest sites from March 1 through August 31. The project will not be operating within any habitat or known nest sites.

Cooper and Sharp shinned hawk

- Restrict disturbance activities within ¼ mile of any newly discovered nests from April 15 through August 31. Haul restrictions will be assessed on a case by case basis. This condition may be waived in a particular year if nesting or reproductive success surveys reveal that the species indicated is non-nesting or that no young are present that year. Waivers are valid only until the start date of the restriction of the following year.

Red-tailed hawk

- Disruptive work activities will not take place within ¼ mile of any newly discovered nest sites from March 1 through August 31. Haul restrictions will be assessed on a case by case basis. This condition may be waived in a particular year if nesting or reproductive success surveys reveal that the species indicated is non-nesting or that no young are present that year. Waivers are valid only until the start date of the restriction of the following year.

Snags and Down Wood

- EA Unit 57, when down logs densities need to be reduced to provide access for thinning, maintain down log densities at 120 lineal feet per acre with a minimum of 16 inches diameter and 16 feet long (NWFP C-40).
- Where incidental removal of snags occurs to meet objectives for fuel loading within lodgepole pine improvement units and scenic views management areas all snags >21 inches dbh will be retained.

Botany

- Discuss invasive plant prevention practices at force account crew or contractor pre-work session. (*Entire Sale Area*)
- Minimize ground disturbance to the extent practicable. (*Entire Sale Area*)
- Make sure equipment is clean (weed free). (*Entire Sale Area*)
- Insure any materials brought to the site are weed free (gravel, rocks, or soil). (*Entire Sale Area*)
- Minimize disturbance of existing vegetation. If needed, revegetate with local native plant species. (*Entire Sale Area*)
- Protect any unmapped Whitebark pine discovered during thinning. (*Entire Sale Area*)

Heritage

- Ground disturbing activities within all eligible or potentially eligible sites will be avoided with a 30 meter buffer placed around the sites. If any cultural resources are discovered during project implementation, all project related activities in that area will cease immediately. Workers must immediately notify the onsite supervisor who will contact a Forest Archaeologist. One of the Forest archaeologists will initiate the consultation process as outlined in Section 800.13 of the Advisory Council on Historic Preservation's regulations 36 CFR Part 800. (*Entire Sale Area*)

Recreation

- Whenever possible, landings, slash piles, and other discordant visual evidence of harvest and treatment activities should not be visible from Sno-parks facilities following completion of operations. (*Units 109 and 39*)
- Do not approve long-term storage of bundles or decks where they will affect the function or use of the Sno-parks. (*Units 109 and 39*)
- Avoid creating sharply diverse vegetation conditions immediately adjacent to Sno-parks. Emphasize a "natural" look of the forest as viewed from the Sno-parks. Sno-parks (*109 and 39*)
- Do not approve slash piles or storage of decks along trails that may create a hazardous situation for snowmobile users. For example, a slash pile covered by snow may appear to be a small hill/obstacle to a snowmobile user, not an unstable slash pile. Mitigate these hazards as

necessary. (*Units: 4, 10, 12, 28, 31, 35, 39, 40, 41, 42, 44, 48, 49, 50, 56, 57, 72, 76, 85, 86, 87, 90, 108, 110, 113, and 114*)

- During tree-marking, or tree or brush removal activities within 300 feet of Sno-parks, coordinate with recreation staff to emphasize retention and improvement of natural site-defining features. Site boundaries for designated Sno-parks are defined by trees, brush, rocks, or down logs. This helps define the edge of where parking is allowed. Maintaining this vegetation entirely or partially or replacing these site-controlling features is critical to future effective site management. (*Units 109 and 39*)
- Retain trees that hold signs (including diamonds that mark winter trails). Replace trail signs that may be damaged or removed during project operations. (*Units: 4, 10, 12, 28, 31, 35, 39, 40, 41, 42, 44, 48, 49, 50, 56, 57, 72, 76, 85, 86, 87, 90, 108, 110, 113, and 114*)
- Whenever possible, in accordance with this EA, remove hazard trees within a tree length near Sno-parks. (*Units 109 and 39*)
- Painted trees should not be visible from Sno-parks within a reasonable time period following completion of project activities. Techniques to accomplish could include, but are not limited to, favoring blue paint marking techniques where possible to mark 'take' trees rather than 'leave' trees for units containing or adjacent to Sno-parks, or removing leave tree paint within sight of Sno-parks. (*Units 109 and 39*)
- Avoid creating vegetative conditions that would facilitate creation of unauthorized trails, or that would facilitate unauthorized motorized access from FSR 16 or Sno-parks. (*Units 109 and 39*)
- Place boulders (preferred) or other natural features bounding Sno-parks to deter cross-country travel. (*Forest Road 16*)
- Obliterate unauthorized travel ways adjacent to the Sno-parks. (*Units 109 and 39*)
- Ensure that temporary roads used for project administration do not become future unauthorized trails by effective obliteration after use. (*Entire Sale Area*)
- Assure snow berms created by snowplowing activities do not coincide with winter recreationist routes that create a hazard for snowmobile groomers or recreational users. Coordinate trail closures with the recreation staff. (*Forest Road 16 and Units: 4, 10, 12, 28, 31, 35, 39, 40, 41, 42, 44, 48, 49, 50, 56, 57, 72, 76, 85, 86, 87, 90, 108, 110, 113, and 114*)
- Provide information about timing and location of treatments on websites and at the Sno-parks, including information on specific trail or area closures. (*Units 109 and 39*)
- Coordinate with the special use administrator to identify recreation events permitted for the season. Coordinate conflicts with timing and location. (*Forest Road 16 and Units 109 and 39*)
- Do not use Upper Three Creek Sno-Park as a staging area as it receives heavy use and serves as a temporary office location for Three Creeks Backcountry outfitter/guides under special use permit by the Forest Service. (*Units 109 and 39*)
- Implement traffic control and safety measures on FSR16 during summer recreation use as necessary. Do not close FSR 16 access to recreational sites. (*Forest Road 16*)

Transportation

Travel Management Planning and Analysis

Operations

- Use existing roads when practicable (*Entire Sale Area*)
- Use system roads where access is needed for long-term management of an area or where control is needed in the location, design, or construction of the road to avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources. (*Entire Sale Area*)
- Consider placing roads in storage (Maintenance Level 1) when the time between intermittent uses exceeds 1 year and the costs of annual maintenance (both economic and potential disturbance) or potential failures due to lack of maintenance exceed the benefits of keeping the

road open in the interim (See BMP Road-6 [Road Storage and Decommissioning]). (*Entire Sale Area limited to current Level 1 roads*)

Road Operations and Maintenance

Operations

- Designate season of use to avoid or restrict road use during periods when use would likely damage the roadway surface or road drainage features. (*Entire Sale Area*)
- Use suitable measures to communicate and enforce road use restrictions. (*Entire Sale Area*)
- Adjust maintenance to handle the traffic while minimizing excessive erosion and damage to the road surface. (*Entire Sale Area*)
 - Ensure that drainage features are fully functional on completion of seasonal operations.
 - Shape road surfaces to drain as designed.
 - Construct or reconstruct drainage control structures as needed.
 - Ensure that ditches and culverts are clean and functioning.
 - Remove berms unless specifically designed for erosion control purposes.(*Entire Sale Area*)
- Use suitable road surface stabilization practices and dust abatement supplements on roads with high or heavy traffic use (See FSH 7709.56 and FSH 7709.59) (*Collector Roads*)

Inspections

- Periodically inspect system travel routes to evaluate condition and assist in setting maintenance and improvement priorities. (*Entire Sale Area*)
- Inspect roads frequently during all operations.
 - Restrict use if road damage such as unacceptable surface displacement or rutting is occurring. (*Entire Sale Area*)

Maintenance Activities

- Maintain the road surface drainage system to intercept, collect, and remove water from the road surface and surrounding slopes in a manner that reduces concentrated flow in ditches, culverts, and over fill slopes and road surfaces. (*Entire Sale Area where required*)
- Clean ditches and catch basins only as needed to keep them functioning. (*Entire Sale Area where required*)
- Do not undercut the toe of the cut slope when cleaning ditches or catch basins. (*Entire Sale Area where required*)
- Use suitable measures to avoid, to the extent practicable, or minimize direct discharges from road drainage structures to nearby water bodies. (*Entire Sale Area where required*)
- Identify diversion potential on roads and prioritize for treatment.
 - Minimize diversion potential through installation and maintenance of dips, drains, or other suitable measures. (*Entire Sale Area where required*)
- Maintain road surface treatments to stabilize the roadbed, reduce dust, and control erosion consistent with anticipated traffic and use. (*Entire Sale Area*)
- Grade road surfaces only as necessary to meet the smoothness requirements of the assigned operational maintenance level and to provide adequate surface drainage. (*Entire Sale Area*)
- Do not undercut the toe of the cut slope when grading roads. (*Entire Sale Area where required*)
- Do not permit side casting of maintenance-generated debris within the AMZ to avoid or minimize excavated materials entering water bodies or riparian areas. (*Entire Sale Area where required*)
- Avoid over widening of roads due to repeated grading over time, especially where side cast material would encroach on water bodies. (*Entire Sale Area where required*)
- Use potential side cast or other waste materials on the road surface where practicable. (*Entire Sale Area*)

- Dispose of unusable waste materials in designated disposal sites. (*Entire Sale Area where required*)
- Remove vegetation from swales, ditches, and shoulders, and cut and fill slopes only when it impedes adequate drainage, vehicle passage, or obstructs necessary sight distance to avoid or minimize unnecessary or excessive vegetation disturbance. (*Entire Sale Area*)
- Maintain permanent stream crossings and associated fills and approaches to reduce the likelihood that water would be diverted onto the road or erode the fill if the structure becomes obstructed. (*Entire Sale Area*)
- Use applicable practices of BMP Road-6 (Road Storage and Decommissioning) for maintenance and management of Maintenance Level 1 roads. (*Entire Sale Area where required*)
- Ensure the necessary specifications concerning prevail maintenance, maintenance during haul, and post haul maintenance (putting the road back in storage) are in place when maintenance level 1 roads are opened for use on commercial resource management projects or other permitted activities. (*Entire Sale Area*)
- Require the commercial operator or responsible party to leave roads in a satisfactory condition when project is completed. (*Entire Sale Area*)

Temporary Roads

- Schedule construction activities to avoid direct soil and water-disturbance during periods of the year when heavy precipitation and runoff are likely to occur. (*Where Applicable*)
- Routinely inspect temporary roads to verify that erosion and storm water controls are implemented, functioning, and appropriately maintained. (*Where Applicable*)
- Maintain erosion and storm water controls as necessary to ensure proper and effective functioning. (*Where Applicable*)
- Use suitable measures in compliance with local direction to prevent and control invasive species. (*Entire Sale Area*)
- Use temporary crossings suitable for the expected uses and timing of use (See BMP Road-7 [Stream Crossings]). (*Entire Sale Area where required*)
- Use applicable practices of BMP Road-6 (Road Storage and Decommissioning) to obliterate the temporary road and return the area to resource production after the access is no longer needed. (*Entire Sale Area where required*)

Road-6 Road Storage and Decommissioning

- Remove the road from the Motor Vehicle Use Map (MVUM) to include the change in the annual forest wide order associated with the MVUM. (*Only roads designated for decommissioning*)
- Establish effective ground cover on disturbed sites to avoid or minimize accelerated erosion and soil loss. (*Where Applicable*)

Road Storage

- Evaluate all stream and water body crossings for potential for failure or diversion of flow if left without treatment. (*Where Applicable*)
- Use suitable measures to reduce the risk of flow diversion onto the road surface. (*Where Applicable*)
- Consider leaving existing crossings in low-risk situations where the culvert is not undersized, does not present an undesired passage barrier to aquatic organisms, and is relatively stable. (*Where Applicable*)
- Remove culverts, fill material, and other structures that present an unacceptable risk of failure or diversion. (*Where Applicable*)
- Reshape the channel and stream banks at the crossing-site to pass expected flows without scouring or ponding, minimize potential for undercutting or slumping of stream banks, and

maintain continuation of channel dimensions and longitudinal profile through the crossing site. *(Where Applicable)*

- Use suitable measures to avoid or minimize scour and down cutting. *(Where Applicable)*
- Use suitable measures to ensure that the road surface drainage system will intercept, collect, and remove water from the road surface and surrounding slopes in a manner that reduces concentrated flow in ditches, culverts, and over fill slopes and road surfaces without frequent maintenance. *(Where Applicable)*
- Use suitable measures to stabilize unstable road segments, seeps, slumps, or cut or fill slopes where evidence of potential failure exists. *(Where Applicable)*
- Close road by means of using natural resource materials such as down logs, boulders, and brush for the first 300' or line of site to its adjacent intersection, whichever is shortest. *(Where Applicable)*

Road Decommissioning

- Use existing roads identified for decommissioning as skid roads in timber sales or land stewardship projects before closing the road, where practicable, as the opportunity arises. *(Where Applicable)*
- Evaluate risks to soil, water quality, and riparian resources and use the most practicable, cost effective treatments to achieve long-term desired conditions and water quality management goals and objectives. *(Where Applicable)*
- Implement suitable measures to re-establish stable slope contours and surface and subsurface hydrologic pathways where necessary to the extent practicable to avoid or minimize adverse effects to soil, water quality, and riparian resources. *(Requires Evaluation)*
- Remove drainage structures. *(Where Applicable)*
- Recontour and stabilize cut slopes and fill material. *(Requires Evaluation)*
- Reshape the channel and stream banks at crossing sites to pass expected flows without scouring or ponding, minimize potential for undercutting or slumping of stream banks, and maintain continuation of channel dimensions and longitudinal profile through the crossing site. *(Requires Evaluation)*
- Restore or replace streambed materials to a particle size distribution suitable for the site. *(Requires Evaluation)*
- Restore floodplain function. *(Requires Evaluation)*
- Implement suitable measures to promote infiltration of runoff and intercepted flow and desired vegetation growth on the road prism and other compacted areas. *(Where Applicable)*
- Use suitable measures in compliance with local direction to prevent and control invasive species. *(Where Applicable)*
- Uncompact road bed soils using mechanical means to encourage natural vegetative growth and increase water infiltration. *(Where Applicable)*

Stream Crossings

All Crossings

- Plan and locate surface water crossings to limit the number and extent to those that are necessary to provide the level of access needed to meet resource management objectives as described in the RMOs. *(Where Applicable)*
- Use crossing structures suitable for the site conditions, the RMOs and design and locate crossings to minimize disturbance to the waterbody. *(Where Applicable)*
- Use suitable measures to locate, construct, and decommission or stabilize bypass roads to avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources. *(Where Applicable)*

- Use suitable surface drainage and roadway stabilization measures to disconnect the road from the waterbody to avoid or minimize water and sediment from being channeled into surface waters and to dissipate concentrated flows. *(Where Applicable)*
- Use suitable measures to avoid, minimize, or mitigate damage to the waterbody and banks when transporting materials across the waterbody. *(Where Applicable)*

Culverts

- Align the culvert with the natural stream channel and cover culvert with sufficient fill to avoid or minimize damage by traffic; construct at or near natural elevation of the streambed to avoid or minimize potential flooding upstream of the crossing and erosion below the outlet and install culverts long enough to extend beyond the toe of the fill slopes to minimize erosion. *(Where Applicable)*
- Use suitable measures to avoid or minimize water from seeping around the culvert and to avoid or minimize culvert plugging from transported bedload and debris. *(Where Applicable)*
- Regularly inspect culverts and clean as necessary. *(Where Applicable)*

Low-Water Crossings

- Consider low-water crossings on roads with low traffic volume and slow speeds, and where water depth is safe for vehicle travel; consider low-water crossings to cross ephemeral streams, streams with relatively low base flow and shallow water depth or streams with highly variable flows or in areas prone to landslides or debris flows. *(Where Applicable)*
- Locate low-water crossings where stream banks are low with gentle slopes and channels are not deeply incised and design low-water crossing structures to maintain the function and bedload movement of the natural stream channel; locate unimproved fords in stable reaches with a firm rock or gravel base that has sufficient load-bearing strength for the expected vehicle traffic. *(Where Applicable)*
- Construct the low-water crossing to conform to the site, channel shape, and original streambed elevation and to minimize flow restriction, site disturbance, and channel blockage to the extent practicable. *(Where Applicable)*
- Use suitable measures to stabilize or harden the streambed and approaches, including the entire bankfull width and sufficient freeboard, where necessary to support the design vehicle traffic; use vented fords with high vent area ratio to maintain stream function and aquatic organism passage. *(Where Applicable)*
- Construct the roadway-driving surface with material suitable to resist expected shear stress or lateral forces of water flow at the site. *(Where Applicable)*
- Consider using temporary crossings on roads that provide short-term or intermittent access to avoid, minimize, or mitigate erosion, damage to streambed or channel, and flooding. *(Where Applicable)*
- Design and install temporary crossings suitable for the expected users, loads, and timing of use and to pass a design storm determined based on local site conditions and requirements. *(Where Applicable)*
- Install and remove temporary crossing structures in a timely manner as needed to provide access during use periods and minimize risk of washout. *(Where Applicable)*
- Use suitable measures to stabilize temporary crossings that must remain in place during high runoff seasons; monitor temporary crossings regularly while installed to evaluate condition. *(Where Applicable)*
- Remove temporary crossings and restore the waterbody profile and substrate when the need for the crossing no longer exists. *(Where Applicable)*

Road-8. Snow Removal and Storage

- Use existing standard contract language (C5.316# or similar) for snow removal during winter logging operations to avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources. (*Entire Sale Area*)
- Move snow in a manner that will avoid or minimize disturbance of or damage to road surfaces and drainage structures. (*Entire Sale Area*)
- Conduct frequent inspections to ensure road drainage is not adversely affecting soil or water resources. (*Entire Sale Area*)
- Control areas where snow removal equipment can operate to avoid or minimize damage to riparian areas, floodplains, and stream channels. (*Entire Sale Area*)
- Install snow berms where such placement will preclude concentration of snowmelt runoff and will serve to dissipate melt water. (*Entire Sale Area*)
- Provide frequent drainage through snow berms to avoid concentration of snowmelt runoff on fill slopes and other erosive areas, to dissipate melt water, and to avoid or minimize sediment delivery to water bodies. (*Entire Sale Area*)

Fire and Fuels

Air Quality

- Reduce particulate emissions through utilization to the extent practical by considering biomass removal wherever feasible (*Entire Sale Area*)

Fire and Fuels

- Reduce and maintain hazardous fuel loadings to levels conducive to low intensity fire behavior. Where hazardous fuels are being treated, retain a percentage of debris and larger dead material for soil protection, establishment of trees, and small mammal habitat. Coordinate with District Resource Specialists and refer to BMPs to determine appropriate thresholds. (*Entire Sale Area*)

Air Quality

- All prescribed fire operations will adhere to the *Oregon Smoke Management Plan* to manage air quality. (*Entire Sale Area*)
- Human-caused visual impacts to the Three Sisters Wilderness area, a federally mandated Class I airshed will be restricted during the period of July 1 – September 15 (*Entire Sale Area*)
- Human-caused visual impacts to the city of Bend, a state of Oregon designated smoke sensitive receptor area, will be avoided. Prescribed burning operations would occur only when winds and atmospheric conditions are conducive to limiting smoke intrusions within city boundaries. (*Entire Sale Area*)
- Warning signs will be posted at prominent road junctions to inform the public of prescribed burning operations, and will remain in place until there is no visible smoke. If feasible, roads may be temporarily closed for the protection of public safety. (*Entire Sale Area*)
- Interested parties will be notified prior to burning season and on the day of planned prescribed burning operations to mitigate potential negative economic effects and health effects to sensitive populations. (*Entire Sale Area*)

Prescribed Fire

- Conduct the prescribed fire in such a manner as to achieve the burn objectives outlined in the Prescribed Fire Burn Plan. (*Entire Sale Area*)
- Identify environmental conditions favorable for achieving desired condition or treatment objectives of the site while minimizing detrimental mechanical and heat disturbance to soil and water considering the following factors. (*Entire Sale Area*)
 - Existing and desired conditions for vegetation and fuel type, composition, structure, distribution, and density.

- Short and long term site objectives.
- Acceptable fire weather parameters.
- Desirable soil, duff, and fuel moisture levels.
- Existing duff and humus depths.
- Site factors such as slope and soil conditions.
- Expected fire behavior and burn severity based on past burn experience in vegetation types in the project are
- Extent and condition of roads, fuel breaks, and other resource activities and values.
- Develop burn objectives that avoid or minimize creating water repellent soil conditions to the extent practicable considering fuel load, fuel and soil moisture levels, fire residence times, and burn intensity. (*Entire Sale Area*)
 - Use low-intensity prescribed fire on steep slopes or highly erodible soils when prescribed fire is the only practicable means to achieve project objectives in these areas.
- Set target levels for desired ground cover remaining after burning based on slope, soil type, and risk of soil and hillslope movement. (*Entire Sale Area*)
- Plan burn areas to use natural or in-place barriers that reduce or limit fire spread, such as roads, canals, utility rights-of-way, barren or low fuel hazard areas, streams, lakes, or wetland features, where practicable, to minimize the need for fireline construction. (*Entire Sale Area*)
 - Identify the type, width, and location of firebreaks or firelines in the prescribed fire burn plan.
- Use fire initiation techniques, control methods, and access locations for ignition and control (hold versus escape conditions) that minimize potential effects to soil, water quality, and riparian resources. (*Entire Sale Area*)
- Locate access and staging areas near the project site but outside of AMZ's, wetlands, and sensitive soil areas. (*Entire Sale Area*)
 - Keep staging areas as small as possible while allowing for safe and efficient operations.
 - Store fuel for ignition devices in areas away from surface water bodies and wetlands.
 - Install suitable measures to minimize and control concentrated water flow and sediment from staging areas.
 - Collect and properly dispose of trash and other solid waste.
 - Restore and stabilize staging areas after use (see BMP Veg-6 [Landings]).
- Conduct prescribed fires to minimize the residence time on the soil while meeting the burn objectives. (*Entire Sale Area*)
 - Manage fire intensity to maintain target levels of soil temperature and duff and residual vegetation cover within the limits and at locations described in the prescribed fire burn plan.
- Construct fire line to the minimum size and standard necessary to contain the prescribed fire and meet overall project objectives. (*Entire Sale Area*)
 - Locate and construct fireline in a manner that minimizes erosion and runoff from directly entering waterbodies by considering site slope and soil conditions, and using and maintaining suitable water and erosion control measures.
 - Consider alternatives to ground-disturbing fireline construction such as using wet lines, rock outcrops, or other suitable features for firelines.
 - Establish permanent fireline with suitable water and erosion control measures in areas where prescribed fire treatments are used on a recurring basis.
 - Maintain firebreaks in a manner that minimizes exposed soil to the extent practicable.
 - Rehabilitate or otherwise stabilize fireline in areas that pose risk to water quality.

- Conduct prescribed fire treatments, including pile burning, for slash disposal in a manner that encourages efficient burning to minimize soil impacts while achieving treatment objectives. (*Entire Sale Area*)
 - Pile and burn only the slash that is necessary to be disposed of to achieve treatment objectives.
 - Locate slash piles in areas where the potential for soil effects is lessened (meadows, rock outcrops, etc.) and that do not interfere with natural drainage patterns.
 - Remove wood products such as firewood or fence posts before piling and burning to reduce the amount of slash to be burned.
 - Minimize the amount of dirt or other noncombustible material in slash piles to promote efficient burning.
 - Construct piles in such a manner as to promote efficient burning
 - Avoid burning large stumps and sections of logs in slash piles to reduce the amount of time that the pile burns.
 - Avoid burning when conditions will cause the fire to burn too hot and damage soil conditions.
 - Avoid piling and burning for slash removal in AMZs to the extent practicable.
 - Minimize effects on soil, water quality, and riparian resources by appropriately planning pile size, fuel piece size limits, spacing, and burn prescriptions in compliance with State or local laws and regulations if no practical alternatives for slash disposal in the AMZ are available.
- Evaluate the completed burn to identify sites that may need stabilization treatments or monitoring to minimize soil and site productivity loss and deterioration of water quality both on and off the site. (*Entire Sale Area*)
 - Provide for rapid revegetation of all denuded areas through natural processes supplemented by artificial revegetation where necessary.
 - Use suitable measures to promote water retention and infiltration or to augment soil cover where necessary.
 - Use suitable species and establish techniques to stabilize the site in compliance with local direction and requirements per FSM 2070 and FSM 2080 for vegetation ecology and prevention control of invasive species.
 - Clear streams and ditches of debris introduced by fire control equipment during the prescribed fire operation.
 - Consider long-term management of the site and nearby areas to promote project success.
 - Use suitable measures to limit human, vehicle, and livestock access to site as needed to allow for recovery of vegetation.

Mechanical Mowing and Mastication

- Evaluate multiple site factors, including soil conditions, slope, topography, and weather, to prescribe the most suitable mechanical treatment and equipment to avoid or minimize unacceptable impacts to soil while achieving treatment objectives. (*Entire Sale Area*)
- Consider the condition of the material and the site resulting from the treatment in comparison to desired conditions, goals, and objectives for the site when analyzing treatment options (e.g., a mastication treatment will result in a very different condition than a grapple pile and burn treatment). (*Entire Sale Area*)
- Use land management plan direction, or other local guidance, to establish residual ground cover requirements and soil disturbance limits suitable to the site to minimize erosion. (*Entire Sale Area*)
- Consider offsite use options for the biomass material to reduce onsite treatment and disposal. (*Entire Sale Area*)

- Use applicable practices of BMP Veg-2 (Erosion Prevention and Control) to minimize and control erosion. (*Entire Sale Area*)
 - Conduct mechanical activities when soil conditions are such that unacceptable soil disturbance, compaction, displacement, and erosion would be avoided or minimized.
 - Consider using low ground-pressure equipment to minimize soil disturbance.
- Operate mechanical equipment so that furrows and soil indentations are aligned on the contour. (*Entire Sale Area*)
- Scarify the soil only to the extent necessary to meet reforestation objectives. (*Entire Sale Area*)
 - Use site-preparation equipment that produces irregular surfaces.
 - Avoid or minimize damage to surface soil horizons to the extent practicable.
- Conduct machine piling of slash in such a manner to leave topsoil in place and to avoid displacing soil into piles. (*Entire Sale Area*)
- Re-establish vegetation as quickly as possible. (*Entire Sale Area*)
 - Evaluate the need for active and natural revegetation of exposed and disturbed sites.
 - Use suitable species and establish techniques to revegetate the site in compliance with local direction and requirements per FSM2070 and FSM 2080 for vegetation ecology and prevention and control of invasive species.

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